1986

An Evaluation of the Expanded Food and Nutrition Education Program, Orleans Parish, Louisiana, 1983-86.

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AN EVALUATION OF THE EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM ORLEANS PARISH, LOUISIANA, 1983-86

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of

Doctor of Education

in

the Department of Agricultural, Extension,
and International Education

By
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B.S. - Stephen F. Austin University, 1961
M.S. - Louisiana State University, 1974
August, 1986

ACKNOWLEDGMENTS

Acknowledgement is gratefully extended to Dr. Satish Verma, Dr. Lynn Pesson, Dr. Diane Burts, Dr. Virginia Cornay, and Dr. Jeff Harris, members of the graduate committee for their counsel and guidance during the process of conducting this study. The writer expresses special appreciation to his major professor, Dr. Bruce Flint, who demonstrated confidence in this writer and encouraged and supported him throughout his graduate program.

The writer wishes to acknowledge with gratitude Orleans Parish Chairman Mrs. Juanita Franklin for her interest, cooperation, and assistance concerning this study. A special appreciation to Dr. Buck Greene who provided the initial motivation to this writer. Special acknowledgement of appreciation to Dr. Denver T. Loupe, Director of the Louisiana Cooperative Extension Service, for his encouragement.

The writer expresses love and appreciation to his parents, the late Hugh O. Fletcher and Robbie Fletcher, for instilling in this writer a desire to achieve.

The writer expresses the deepest love and gratitude to his wife, Barbara, for the sacrifices and support she has given to this writer's graduate program. Special appreciation is extended to Denise and Bobby, the writer's children, for their support and love.

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ABSTRACT

The primary objective of this study was to determine the extent to which dietary behavior changes were made by the EFNEP participants in Orleans Parish, Louisiana, and whether or not they were retained after they were graduated for six months but less than one year. Data were obtained by personal interviews conducted by paraprofessional nutrition aides on the 208 homemakers who participated in the EFNEP during 1983-86. The 24-hour dietary recall instrument was the basis upon which homemakers' diets were evaluated.

The dependent variable in this study was the mean difference in dietary scores at three different points in time (entry, graduation, and post-graduation) as evaluated by the 24-hour food recall instrument. The independent variables which were compared with the dietary score were age, family size, income, participation in assistance programs, and educational level.

The data show that the 208 homemakers in this study made statistically significant dietary behavior improvements during the two years of enrollment (1983-85). The data also show that the homemakers retained their improved dietary behavior at a statistically significant level after graduation (6-12 months). However, where dietary change was compared with age, family size, income, educational level, and participation in assistance programs, there was found to be no statistically significant relationship.

On the basis of the findings in this study, the EFNEP in Orleans

Parish, Louisiana, 1983-86, was effective in improving the dietary behavior of the low-income homemakers and that the improvement was statistically significant.

Chapter I

INTRODUCTION

Purpose of Study

The primary purpose of this study was to determine the extent to which dietary behavioral changes were made by low-income homemakers in Orleans Parish enrolled in the Expanded Food and Nutrition Education Program and whether or not changes were retained after graduation from the program.

Situation

During the early 1960's, evidence was accumulating about the appalling living conditions endured by millions of Americans. Vivid glimpses of poverty were constantly shown by the news media, and America turned increasingly toward the plight of the less fortunate Americans. It was difficult to realize that in a land of plenty, families were going to bed unfed and malnourished. In this atmosphere of awareness and concern, the Expanded Food and Nutrition Education Program, hereafter referred to as "EFNEP", was created.

In 1968, the U.S. Congress appropriated ten million dollars for the United States Department of Agriculture to initiate the EFNEP under the aegis of the Cooperative Extension Service. This funding was increased to thirty million dollars in 1970, under the Smith-Lever Act, making the EFNEP an integral part of the Extension Service's mission in the "dissemination of useful and practical information." Congress charged the Extension Service (through the EFNEP) to help families

living in poverty or near poverty (especially those with young children) to acquire knowledge, skills, attitudes, and changes in dietary behavior necessary for nutritionally sound diets. A secondary charge was to assist families in their personal development and the improvement of total family diet and nutritional welfare.

The specific objective of the EFNEP is to help low-income families improve their dietary habits through increased knowledge about nutrition, including food selection, preparation, and preservation. Unlike welfare and food assistance programs, which provide food for low-income families, the EFNEP concentrates on providing these homemakers with educational experiences on the importance of nutrition and how to utilize their existing food resources.

The three distinguishing features of the EFNEP are: (1) intensive education on an individual and/or small group basis, (2) educational programs which are conducted by Extension paraprofessionals, and (3) the targeted audience is low-income homemakers and youth.

According to the objectives of the program, participation in the EFNEP should result in:

- Improved diets and nutritional welfare for the total family,
- Increased knowledge of the essentials of human nutrition,
- Increased ability to select and buy foods that satisfy nutritional needs,
- Improved practices in food production, preparation, storage, safety, and sanitation, and
- Increased ability to manage food budgets and related resources.

The primary audiences for the EFNEP are adults and youth. Food

and nutrition subject matter is the principal content for both audiences. The specific adult audience is low-income homemakers living either in rural or urban areas, who are responsible for planning and preparing the family's food - with emphasis on households with young children. The target youth audience is low-income 4-H youth living in rural or urban areas consistent with respective state definitions of 4-H age.

The Expanded Food and Nutrition Education Program is funded annually by Congress and is conducted in each state by that state's Cooperative Extension Service. In Louisiana, the program is conducted in 14 parishes (counties). The parishes are Bossier, Caddo, DeSoto, East Baton Rouge, Evangeline, Lafayette, Orleans, Ouachita, Rapides, Richland, St. Landry, St. Martin, Tangipahoa, and Washington.

County, state, and national Extension Services' programs provide the organizational framework through which the EFNEP functions. EFNEP leadership at the national level has overall responsibilities for monitoring and evaluating the nationwide program. It also provides administrative and technical support to coordinate interstate program activities and to implement federally mandated guidelines.

The Louisiana Cooperative Extension Service provides the second-line administrative control for the EFNEP. The state program coordinator of the EFNEP provides leadership and management to the program. State food and nutrition specialists prepare training and resource materials in nutrition subject matter which serve the needs of program professionals, paraprofessionals, volunteers, and participants at the parish level.

Parish EFNEP personnel represent the core of the program, since it is at this level that face-to-face educational contacts are made with

the targeted clientele. Professional home economists have direct responsibility for the operation of the parish EFNEP units. They train and supervise the paraprofessional nutrition aides who teach the low-income homemakers and youth. These nutrition aides are also under the supervision of paraprofessional supervisory aides (Nutrition Aides II) employed in the EFNEP.

Most nutrition aides live in the neighborhood or housing project where they work. This factor helps increase the effectiveness of aides by working with families close to their own homes. The indigenous aide also helps with the recruitment of homemakers, which is a continual process since homemakers are allowed to enroll for a period of two years and then are graduated. Each nutrition aide works with 40 adult homemakers and 35 youth by conducting two nutrition lessons to the adult members and one lesson to the youth each month.

The aide conducts the adult lesson in the home of the homemaker. Some are conducted in small groups of 2-3 homemakers, and the youth lessons are conducted in a home, church, or community center. All of the nutrition lessons incorporate the "show and tell" method of teaching by demonstrating how to prepare nutritious, low-cost food for a meal and tell why it is nutritionally sound. The homemaker also receives printed information which reinforces the main emphasis of the lesson and is encouraged to prepare the meal for her family. The nutrition aides are taught these nutrition lessons and supervised by Extension Home Economists.

Primary responsibilities of the aides can be summarized as follows:

1. Recruiting and enrolling homemakers,
2. Identifying food and nutrition-related needs of homemakers,

3. Planning and conducting educational experiences based upon needs,
4. Teaching nutrition and nutrition-related subjects individually or in small groups,
5. Teaching in a manner for easy transmittal to the children in the family,
6. Evaluating progress of homemakers using a 24-hour food recall instrument,
7. Identifying potential 4-H EFNEP youth from enrolled families, and
8. Referring families to other Extension programs, agencies, and organizations.

Need For This Study

Orleans Parish has a population of 557,515 people comprising 207,075 households of which 52 percent are white and 48% are black. The median family income for Orleans Parish is $15,003. There are 139,592 people living in families with incomes below the poverty level ($10,650) which make up 25 percent of the total population. Blacks represent a disproportionate percentage of these families at or below the poverty threshold with a total of 113,067 or 21 percent of the total population of the parish. Considering the primary objectives of the EFNEP, the above facts easily justify Orleans as a location that is very much in need of the program.

The program was implemented in Orleans Parish in 1970, and since that time almost seven thousand homemakers have participated in the program. Some of them did not successfully complete the program, but the majority did graduate, which normally requires participation for 24 months.

For fiscal year, 1985-86, the Louisiana Cooperative Extension Service budget for the EFNEP in the state was 1.8 million dollars. In Orleans Parish, which is the largest parish program in the state, the budget was $325,000. These funds are used primarily to pay the salaries of seven professional home economists, one secretary, twenty-four nutrition aides, and three supervisory aides.

Due to the status of the overall economy in the state and nation each year for the past several years, states have had to justify expenditures for the EFNEP. These justifications are difficult without information that indicates the extent to which the objectives and intent of the program are being achieved.

It was felt that this study would be helpful not only in providing this information, but additional information that might be useful in making the program even more effective.

The Problem

There has been no formal study of the families enrolled in the EFNEP in Orleans Parish. Generally, observations and data tend to indicate an improvement in dietary behavior toward the achievement of normal nutrition by program participants. The basic problem was lack of information concerning the extent to which Orleans Parish homemakers made dietary changes, whether these dietary changes were permanent or temporary and whether or not socio-economic characteristics were associated with dietary behavioral change.

Objectives of the Study

The primary objective was to determine the extent to which dietary behavior changes were made by the EFNEP participants and whether or not they were retained after they were graduated from the program. Other

objectives of the study were as follows:

1. To determine selected socio-economic characteristics of participants,
2. To determine whether or not these characteristics were associated with behavioral change of program participants, and
3. To draw conclusions about the effectiveness of the EFNEP conducted in Orleans Parish.

This study was concerned with demonstrating the utility of the classical model of the diffusion process through application of the basic concepts of the model to a program of planned intervention. More specifically, the study focuses on the Orleans EFNEP by quantifying dietary behavioral practices of homemakers and measuring them at specific points in time.

Definition of Terms

The following terms are defined as they were used in the study:

Nutrition Aide - A paraprofessional who is an employee of the Louisiana Cooperative Extension Service, receives direction from professionals and supervisory aides, and is employed to extend the efforts of Extension program professionals through direct contact with clientele enrolled in the EFNEP.

Supervisory Aide - A paraprofessional who is an employee of the Louisiana Cooperative Extension Service who supervises and gives leadership to the nutrition aides working with the EFNEP.

Homemaker or Enrolled Family - A family recruited and currently enrolled in the EFNEP program.

Graduated Program Family - A family who has successfully completed the EFNEP program by exhibiting desired behavior/performance.

Twenty-four Hour Food Recall - One of the progression materials to study the nutrition of homemakers which provides a continuing picture of the program's effect on behavior of homemaker and is conducted at entry and every 6 months until graduated from program.

Dietary Behavior - The food consumption pattern of an individual.

Poverty Income Guidelines - The guidelines, established by the Community Service Administration to indicate poverty status of families according to size of family unit and non-farm/farm residence.

The 1985 Poverty Income Guidelines are:

Size of Family Unit	Poverty Guideline
1	$ 5,250
2	7,050
3	8,850
4	10,650
5	12,450
6	14,250
7	16,050
8	17,850

For family units with more than eight members, $1,800 is added for each additional member. These figures apply to all states except Alaska and Hawaii.

Normal Nutrition - Includes the importance of nutrition for health and well-being; the nutrients - their characteristics, functions, metabolism, food sources, and daily allowances; food selection, care and preparation; guidelines to meet dietary needs; and special nutritional needs throughout the life cycle - pregnancy and lactation, infancy, children and teenagers, and after 50 years of age. Normal nutrition is not a diet related to disease conditions.

Minimal Diet - A food consumption pattern that includes one serving from each of the milk, meat, fruit/vegetable, and bread/cereal food groups on a daily basis.

Adequate Diet - A food consumption pattern that includes two servings each of the meat and milk groups and four servings each of the fruit/vegetable and bread/cereal groups on a daily basis.

Chapter II

REVIEW OF LITERATURE

Adult Education

Since the primary purpose of this research was focused on determining the dietary behavioral change of adults participating in the EFNEP in Orleans Parish, the basic theoretical orientation for the research is rooted in the fields of adult education and social change. The review of literature was limited primarily to those fields and to previous studies of the EFNEP.

In any discussion of education and learning, one soon encounters the concepts of "behavioral change" and "learning experience."

According to Bloom (1964), "behavioral change" can be classified into basically three domains which are cognitive, affective and psychomotor. The cognitive domain has to do with changes relative to knowledge and understanding. The affective domain includes changes in attitudes, values, interests, and beliefs, and the psychomotor domain has to do with those changes that a person makes in acquiring skills and abilities. Needless to say, there is an interrelationship between all three, and many changes that a person makes involves all three domains.

A "learning experience" is defined by Tyler (1949) as the interaction between the learner and the external conditions in the environment to which he can react. He further states that learning takes place through the active behavior of the participant; it is what one does that one learns, not what the teacher does. Therefore, learning

takes place through the experiences which the learner has and through the reactions he makes to the environment in which he is placed. He proposes that the learner is an active participant, that some features of his environment attract his attention and it is to these that he reacts.

The selection of learning experiences appropriate for attaining objectives by the teacher, according to Tyler (1949), is most important to achieve behavioral change. These learning experiences must:

(1) be set up to give an opportunity for the learner to practice the kind of behavior desired,

(2) be such that the learner obtains satisfaction from carrying on the kind of behavior implied, and

(3) be within the range of possibility for the learner involved.

He also acknowledges that there can be many particular experiences that can be used to attain the same educational objectives, and that the same learning experience will usually bring about several outcomes.

Havighurst (1956) maintains that "developmental tasks" are important considerations in education and behavioral change and that an understanding of these tasks will increase the effectiveness of the learning process. He defines a developmental task as one which arises at or about a certain period in the life of the individual. The success in achieving these tasks will lead to happiness and to success with later tasks, while failure will lead to unhappiness in the individual, disapproval by the society and difficulty with later tasks.

He further states that the concept of developmental tasks is useful to education because (1) it helps in discovering and stating the purpose of educational programs, and (2) it helps in the timing of educational efforts.

In a further discussion of adulthood and developmental tasks, Havighurst divides the adult years into three phases, "early adulthood" (ages 18-30), "middle adulthood" (30-55), and "late maturity" (55 and above) and identifies ten social roles of adulthood: worker, mate, parent, homemaker, son and daughter, an aging parent, citizen, friend, organizational member, religious affiliate, and user of leisure time. He further states that as we move through these three phases of adulthood our developmental tasks change, which change our readiness to learn. Therefore, adulthood is a developmental period in almost as complete a sense as childhood and adolescence are developmental periods.

The above discussion provides the following two important implications:

1. If the teachable moment for a particular adult to acquire a given learning is to be captured, it is obvious that the sequence of the curriculum must be timed so as to be in step with his developmental tasks.
2. For some kinds of learnings to be effective, there will be a need to have homogeneous groupings of learners.

According to Houle (1963), adults that participate in adult education programs generally can be placed into three categories. The first of these are "goal oriented" or persons who use education as a means of accomplishing clearly defined objectives. The second group can be called "learning oriented" because they are people who seek knowledge for its own sake. A third group can be classed as "activity oriented" because they are persons who participate because they find in the circumstances of the learning a meaning which might not have any connection with the announced purpose of the activity. He further

points out that in most any group involving a large number of people, you can generally find some of all three types. In his discussion relative to adult learning, Brunner, Wilder, Kirchner, and Newberry (1959) points out that adult learners have many motives, but their consistent pursuit of learning, through whatever avenues and agencies of adult education they have chosen, is largely determined by personal values and satisfactions.

This tends to be supported by Dickenson (1973) who maintains that adults differ in their desire to learn. He believes that certain principles of learning affect the rate of learning and how well a person learns. To increase the speed of learning, he found the material needed to be meaningful to the learner, the learner needed the opportunity to practice, and the more the learner practiced, the better the information presented was learned. Reinforcement also affected rate and retention of learning.

Most authorities tend to agree that adults can learn and, given their own time, can learn as effectively in later maturity as in earlier adulthood, unless physically handicapped. Learning is most rapid when motivation is strong and goals are clear, and in all adult educational programs the social situation influences both participation and outcomes.

Adult education must deal with a well-developed, subjectively meaningful motivation in relation to complex social influences and social values.

Social Change

This study was concerned, not only with learning and behavioral change, but also with the extent to which the changed behavior was maintained after participation in the educational program ceased.

On this issue, Kurt Lewin (1943), who was a pioneer in many of the studies of change in individual and group performances, offers the following:

> "A change toward a higher level of group performance is frequently short-lived; after a 'shot in the arm,' group life soon returns to the previous level. This indicates that it does not suffice to define the objective of planned change in group performance as the teaching of a different level. Permanency of the new level, or permanency for a desired period, should be included in the teaching objective. A successful change includes, therefore three aspects: unfreezing the present level, moving to the new level, and freezing group life on the new level."

Lippitt, Watson, and Westley (1958) suggest that change agents must choose techniques which will help the client system solve its problem and which will develop and maintain an appropriate relationship between the change agent and the client system so that the client will willingly acknowledge and use the resources offered by the agent. They proposed the following phases of the change process:

1. Developing of a need for change ("unfreezing"),
2. Establishing of a change relationship,
3. Working toward change ("moving"),
4. Generalization and stabilization of change ("freezing"),
5. Achieving a terminal relationship.

One of the major objectives of this study, "to determine to what extent dietary behavior changes were retained after graduation from the EFNEP," focuses upon the stabilization of change ("freezing") to achieve a terminal relationship with the client system.

Too often, according to Lippitt, Watson, and Westley (1958),

change which has been produced by painstaking and costly efforts tends to disappear after the change effort ceases and the client's system, which wanted the change, slips back into its old ways. They contend that during each step in behavior change that the change agent's (nutrition aide) job is to help the client system work at the task of changing. This means that the relationship between the change agent and the homemakers is the most important single aspect of the change process.

In his discussion on change, Lionberger (1960) maintains that there is a series of stages through which people pass in the process of adopting new ideas or practices. Those stages are:

1. Awareness - the first knowledge about a new idea, product, or practice,
2. Interest - the active seeking of expensive detailed information about the idea to determine usefulness and applicability,
3. Evaluation- weighing and sifting the required information and evidence in the light of existing conditions,
4. Trial - the tentative trying out of the practice or idea accompanied by acquisition of information on how to do it, and
5. Adoption - the full-scale integration of the practice or idea into behavior.

Kuhlen (1963) states that the adoption of a new idea is not a simple unit act, but rather a complex pattern of mental activities combined with actions taken before an individual fully accepts or adopts a new idea or practice. Individuals in any particular clientele group move through the individual adoption process at different rates

of speed. Some of those he lists include age, education, social background, financial situation, previous experience, need, compatibility, and satisfaction. He states that adults were likely to remain only if the educational programs met their needs, interest, and capacities.

Rogers' research (1962) showed that members of a social system can be put into several classes based on how soon they adopt new ideas or practices. These classes are: innovators, early adopters, early majority, late majority, and laggards. The innovators are venturesome, eager to try new ideas, more cosmopolite, and risk takers. Laggards were the last to adopt a new practice....they live in the past, are very suspicious and alienated. Early adopters have more years of education, are more literate, have higher social status, and have a greater degree of upward social mobility. People who are impoverished or disadvantaged were more likely to be laggards (Rogers, 1962).

The final decision to adopt a new practice, according to Lionberger (1960), is usually the result of a series of influences operating over a period of time. It is this principle of influences that has been utilized in the educational methods employed in the EFNEP to achieve desired behavioral changes in low-income homemakers enrolled in the Expanded Food and Nutrition Education Program.

In this study, the Louisiana Cooperative Extension Service (change agency) through the use of paraprofessional aides and home economists (change agents) attempt to modify, over time, low-income homemakers' (clients) nutritional behavior (change) positively by getting them to understand the value of and eat a more nutritionally adequate diet.

Selected Socio-Economic Characteristics

Program Homemakers

The black family is more similar than dissimilar to the dominant form found in the larger society; however, a disproportionally large number of black families are found in the low-income categories. This disadvantaged adult (program homemaker) differs from the general population with respect to certain socio-economic measures such as age and sex, education, income, employment, occupation, family size, marital status, health, and residence (Anderson and Niemi, 1970).

The majority of the black families adhere to the nuclear family model which includes husband, wife, and children. The upper income families tend to be more patriarchal in structure, middle income families more equalitarian, and lower income families are more often matriarchal. Black families that are headed by women with no husband present constitute 38 percent of all black families and the percentage is growing. Approximately 60 percent of all female-headed families have incomes below the poverty level and of this number, 60 percent work, and 50 percent receive some welfare assistance.

A study by Dunkelberger, Martin, and Pratt (1973) indicated that the EFNEP enrolled homemakers possessed certain characteristics. These were: (1) being between 30 and 45 years of age, (2) having an unemployed husband, (3) having an income at or below the established poverty guidelines, and (4) participation in some public assistance program designed for the poor.

In his book, Koch (1973) cited several cultural characteristics of disadvantaged families. The homemakers who lived in poverty lacked motivation to escape and those who tried to escape experienced frustration. They were suspicious of outsiders, felt helpless about their

situation, and refused to take risks. Koch further stated that the disadvantaged could best be reached through very simple educational methods; face to face contacts, small group meetings, and through their own social structure and leadership. According to Anderson and Niemi (1970), their values were not conducive to self help.

Anderson and Niemi (1970) pointed out that poverty was self-perpetrating and that people who lived in poverty learned to accommodate themselves to this disadvantaged status. They further suggested that our system of welfare tends to perpetrate non-employed female household heads with no husband present. The system also discourages work, savings, and inheritance. It tends to promote a female-oriented system that seeks to pacify rather than to correct. The conditions of insufficient education, lack of education, under employment, and for many, depleted energies and ego stamina needed to cope with the frustrating urban environment in Orleans Parish typify the environment facing nutrition aides conducting the EFNEP. In addition, Edwards (1966) noted that the Central City area inhabited by blacks was "inferior in terms of housing, recreational facilities, schools, and general welfare services." All of these deficiencies contribute to crime, delinquency, school dropouts, dependence, family stress, excessive deaths, and other conditions which represent the pathology of the ghetto. These socio-economic conditions are characteristic of the environment in Orleans Parish, Louisiana, making the task of change agent for the nutrition aide even more challenging and difficult.

Education

Havighurst and Orr's book (1956) suggested that education was

necessary for competence in one's work and that education was a means of maintaining engagement with society. A person who did not keep up with society or keep in touch with society through continual education was in danger of being alienated from it. Dickenson (1973) stated that persons with a low educational level should be given special attention. The instructional content should be meaningful to the learner in terms of their occupational and cultural background.

Lowe (1975) found that disadvantaged families did not come to educational institutions; consequently, facilities needed to be provided where they lived and worked. He also felt that educational programs should be developed to offer attractive incentives.

According to Anderson and Niemi (1970), disadvantaged families did not view education in terms of self-realization. Underprivileged homemakers felt that education had nothing to offer them, although they had higher expectations of education for their children (Lowe, 1975). Seiders (1972), Linder (1976), and Walton (1971) reported that the educational level of homemakers did not affect the adequacy of their diets. However, other research supports the observation that educational level does have a positive effect on both nutritional knowledge and dietary behavior (Langston, 1977; Nolan and Gross, 1972).

The relationship between a low level of education and poor nutritional habits was suggested by Brown (1965) and Porter (1961). Brown (1965) indicated that 62 percent of the study subjects who had eight years or less of formal education showed little interest in using the nutritional information provided. Porter (1961) found that the saving of money on food was the main interest and concern of those with the lowest educational level. Another finding by Porter indicated that the better educated attached greater importance to getting the grade or

quality of food for the money spent. The least educated expressed difficulty in meal preparation.

Among the disadvantaged, educational level has been found to be consistently below that of the general population so that a major proportion of low-income homemakers are characterized as educationally deficient (Anderson and Niemi, 1970). A positive relationship between a low level of education and poor nutrition was also suggested.

Horton, Carter, and Dotson (1973) found an inverse relationship between educational level and quality of diets. Homemakers with less than eight years of schooling significantly increased the number of servings of three of the four food groups. According to Barrick (1979), the highest and lowest extremes in mean scores occurred among homemakers with education beyond the twelfth grade.

Teaching Methods

As a part of the educational program, nutrition aides met with their homemakers twice a month to present the nutrition lesson. Feaster (1972) found that the number of aide visits to homemakers influenced their food consumption patterns. Homemakers who received three visits each month from aides increased their consumption of foods in the milk and fruit and vegetable food groups of the daily food guide more than homemakers receiving fewer visits. Food buying and nutrition knowledge was also increased with increased visits by the teaching aides (Nolan and Gross, 1972).

Nutrition aides worked with homemakers either in small group meetings in the homes of homemakers or individually. Plovanich (1970) reported that more than one-half of the homemakers surveyed indicated they would agree to meet in small groups with their neighbors in order

for more to be reached. Barrick (1979) found no significant difference between progress of homemakers who were taught in a group meeting as opposed to those taught individually. Mortvedt (1974) indicated that a substantial proportion of low-income homemakers desired some kind of group activity, especially rural women, metropolitan black women, and women with few years of schooling. Davie (1973) reported that group contacts were more conducive to improved dietary intake than were either individual or a combination of group and individual contacts.

The homemakers perceived radio, television, newspaper, and nutrition aides as useful sources of nutrition information (Efionayi, 1970). Roy (1973) found that visits of nutrition aides could be strengthened with follow-up newsletters. Groves (1973) reported that newsletters were effective in getting clients' attention; however, they had no impact on adoption of new nutritional behaviors.

Trent, Kinlaw, and Pintozzi (1977) conducted a study to determine whether nutrition knowledge and practice of selected low-income homemakers could be changed significantly through direct mailings to their homes. There was a significant change in knowledge with all three types (leaflets, circular letters, and cartoon booklets) of literature. The leaflet was the most effective with the circular letter a close second.

Income

The income of homemakers had both positive and negative influence on the behavior change during enrollment in the EFNEP.

In a study, Walton (1971) found that the lowest income families made the greatest increase in the use of the four food groups while Brew (1971) and Langston (1977) reported that income level did not

affect the quality of diets. The USDA (1981) reported that blacks had the lowest median income and had poorer diets than whites. Whites in metro counties had a median income of $20,000, whereas blacks' median income was $12,000.

Effect of Food Stamp Participation on Quality of Diets

At least two studies (Swatzer, 1972 and Graham, 1978) reported that participation in the food stamp program did not improve the nutritional value of diets; however, Feaster and Perkins (1973) found that they did. Davis (1977) reported that simultaneous participation in the food stamp program and in the EFNEP had greater impact on nutrient intake than either program taken separately.

Age

Some studies have found that younger homemakers made more changes than older ones. Horton, Carter, and Dotson (1973) and Seiders, Carter, and Dotson (1972) found that younger homemakers under 35 and 25, respectively, improved their food knowledge and dietary behavior, especially in the meat group. Other studies by Carruth, Mangel, and Anderson (1977) and Linder (1976) reported that older homemakers experienced no significant changes in food knowledge or dietary improvement. Older homemakers, those over 60 years of age, did not make statistically significant changes in their food knowledge or dietary practice scores after participation in the EFNEP.

Race

A study by Linder (1976) showed that when compared with progress made in food consumption patterns, race was the only characteristic that showed any association with level of dietary adequacy. The data

from this study indicated that white homemakers did not significantly increase their food consumption scores over time after participation in the EFNEP, while black homemakers made highly significant changes.

Dietary Behavior of Program Homemakers

The first twelve months of participation in the EFNEP appeared to be the time period when the greatest increases occurred in both the food consumption and food knowledge scores (Linder, 1976). Homemakers had better diets after participating in the program from two to four months (Verma and Jones, 1973) or up to six months (Feaster and Perkins, 1976, and Krueger, 1979). One study found that homemakers enrolled longer than one year tended to consume more satisfactory diets than newly enrolled homemakers (Nordstrom and Kohrs, 1978). However, Wang, Green, and Ephross (1972), Linder (1976), and Krueger (1979) found that improvements in the diets of homemakers diminished after the first year.

Additionally, Linder (1976) found that the amount of increase in favorable dietary practices after twelve months is relatively small in comparison to the amount of increase achieved during the first twelve months of the EFNEP. This decreasing rate of increase points to the phenomenon of diminishing returns. Linder (1983) also implied that behavioral changes were made by homemakers who participated in the program for six months as well as homemakers who had participated for two years.

Another study showed that homemakers varied in their ability to improve their diets, as cited by Krueger (1979). The nutritional changes, noted by Krueger (1979), were associated with certain homemakers' socio-economic characteristics of age, ethnic background,

educational level, and income level.

Graduated Program Families

Homemakers who had completed an eight-week nutrition program regressed to a dietary level almost equal to the one before participating in the program in the fruit and vegetable food group, according to Williams (1970). Rountree (1973) also found that graduated program families did not sustain dietary improvements that had been made. A study by Kirkland (1978) showed that regression is no greater over a long period of time after graduation than it is over a shorter period of time. Two studies by Brown and Pestle (1981) and Kateregga (1981) found that dietary improvements were sustained one year after the homemaker left the program. Similarly, Williams (1970) indicated an increase in the number of homemakers having at least one serving from each of the four food groups immediately after the program and another increase four months later.

Summary

The research reviewed tends to support the idea that the EFNEP has had some success in bringing about improvement in dietary behavior of low-income homemakers. This success in dietary behavioral change of the clientele is a result of the implementation of an educational program which conforms to some of the basic principles of adult education: (1) that the information or practices be meaningful to the learner, (2) that there is learner participation and satisfaction, and (3) that the learner has a feeling of benefiting from the educational experience.

The literature reflects that the behavioral change in clients is influenced by many socio-economic factors and that these factors affect

the rate of acceptance of recommended practices over time. Some of the major factors found to be associated with the rate of change were: age, race, frequency of aide visits, education, income, family size, and teaching methods.

The literature reviewed relative to studies of the EFNEP tend to support the following:

1. Low-income homemakers made desired behavioral changes in their dietary practices as a result of participation in the EFNEP,
2. Nutrition aides were effective teachers in working with clients,
3. The rate of change by homemakers was influenced by selected socio-economic factors,
4. Aide training was effective in preparing them to work with families,
5. Food consumption mean scores were generally higher during the first 12 months of participation, and especially during the first six months,
6. All individuals in a social system do not adopt innovations at the same rate, and
7. Maintenance of dietary practices varied after participants graduated from the program.

The Review of Literature indicates that the EFNEP program objective, "to help low-income families, especially those with young children, to acquire the knowledge, skills, attitudes, and changed behavior necessary to improve their diets in normal nutrition," is being accomplished to some degree. The research findings do indicate variations in the rates of change in dietary practices of homemakers participating in the program. However, relatively little information

is available about the extent to which improved nutrition practices continue to be followed after graduation from the program. That information constituted the major focus of this study.

Chapter III

METHODOLOGY

Population For Study

The EFNEP was implemented in Orleans Parish in 1970. As previously indicated, the program is conducted by paraprofessional nutrition aides who are trained and supervised by professional home economists and supervisory aides. Ideally, each aide works with approximately 40 homemakers.

The aide presents two nutrition lessons each month for a period of 24 months. At the end of this period of time, the homemakers are graduated and new homemakers are enrolled. Sometimes, due to change in place of residence or other reasons, homemakers will drop out of the program prior to graduation. When this happens, the aide will recruit new homemakers to take their place. This factor, plus graduation, results in a continuous enrollment of new homemakers and at any point in time the homemakers enrolled in the program have been participating for varying periods of time ranging from 1 day to 24 months. At the time of this study, there were approximately 1,000 homemakers enrolled.

In order to achieve the objective of the study, it was necessary to administer a 24-hour food recall at entry into the program, at graduation from the program, and at a point in time 6-12 months after graduation.

This meant that the homemakers included in the study had to be graduates of the program for at least 6 months and not more than 12 months. Time of entry to 12 months after graduation encompassed the

time period of 1983-86.

The total population meeting this criteria was 208 black homemakers who had participated in the Orleans Parish EFNEP from entry (1983) to graduation (1985). This time (entry to graduation) is referred to in the study as T_2-T_1, with T_1 being the time of entry in the EFNEP and T_2 being the time of graduation from the EFNEP.

The 24-hour food recall was administered to the 208 black homemakers upon entry (1983) and when graduated (1985) from the program. The data collected was used to determine change in the dietary behavior practices.

The other portion of this study dealt with obtaining information relative to the extent to which homemakers continued good nutrition practices 6 to 12 months after graduation from the program (T_3). This time period is referred to as T_3-T_2, with T_2 representing the time of graduation and T_3 representing 6 to 12 months after graduation (post-graduation).

The supervisory aides attempted to contact (face to face) the entire population of 208 homemakers to administer the 24-hour food recall at the post-graduation time period. Three attempts were made to contact each homemaker. As a result of this concerted effort, only a total of 114 homemakers could be found who had been graduated from the program for at least 6 months and not more than 12 months. These 114 homemakers constituted the total population for the second phase of the study.

Data Collection

The 24-hour dietary recall instrument was the basis upon which homemakers' diets were evaluated. The pretest was the 24-hour food

recall completed when the homemaker entered the program. This instrument was also administered two years later at graduation from the EFNEP. The post-test (T_3) was the 24-hour food recall the nutrition aide administered to the 114 homemakers that had been graduated from the EFNEP at least six months but less than twelve months. The survey instrument for the post-test was administered by the three supervising aides working with the EFNEP in Orleans Parish. In order to maintain objectivity, the list of 208 homemakers was rotated so that no nutrition aide administered the survey instrument to homemakers she had previously worked with.

Gersovitz, Madden, and Smiciklas-Wright (1978) stated that the 24-hour food recall and the 7-day record provide equally accurate estimates of the mean intake of a group. Bowering, Morrison, Lowenburg, and Tirado (1976) found that this approach (24-hour food recall) gave essentially the same conclusion as the nutrient approach in analyzing diets. Guthrie (1971) indicated that the 24-hour food recall tends to overstate the amount consumed. Other studies of the 24-hour food recall have indicated that the procedure does provide a meaningful way to indicate behavioral change in dietary practices and cognitive changes in food knowledge for participants in the EFNEP, USDA (1970).

The 24-hour food recall form is one of the progression materials which provide a continuing picture of the EFNEP's effect on the individual homemaker. The progress of homemakers is recorded by utilizing this food recall record to document dietary behavioral practices. Each homemaker receives a numerical score (0-100) determined by use of a scoring guide (Appendix B) based on the number of servings within the four basic food groups: milk, meat,

fruit/vegetable, and bread/cereal. These recall data help nutrition aides and supervisors identify specific needs of individual homemakers to better plan for educational program emphasis. A researcher can evaluate the program's effects for a selected group of homemakers or a total parish program.

Data Analysis

The dependent variable in this study was the mean difference in dietary behavior scores at three different points in time as evaluated by the 24-hour food recall instrument administered by the nutrition aides. This numerical score was recorded at entry into the EFNEP (T_1), at graduation from the EFNEP (T_2), and post-graduation (T_3).

The independent variables in this study which were compared with the dependent variable (dietary score) were age, family size, income, participation in assistance programs, and educational level.

Pedhazur (1973) states that multiple regression analysis is suited for analyzing the collective and separate effects of two or more independent variables on a dependent variable. This procedure was utilized in analyzing the variability of the differences in dietary behavior mean scores at T_1, T_2, and T_3 by resorting to information on the five independent variables.

In the analysis, the independent variables of age, family size, and income were included as continuous variables while participation in assistance programs and educational level were considered as category variables. When presenting the results, regression coefficients were used to show significant relationships between age, family size, and income and the dependent variable. Mean differences in dietary scores for the homemakers participating and not participating in assistance

programs and homemakers at various educational levels were shown in order to compare participation in assistance programs and education with dietary score.

For purposes of this study, it was decided to use the .10 level of probability as indicating sufficient difference between the variables tested to be considered statistically significant. However, when larger differences indicated levels of probability of .05, .01, or .001, these were indicated accordingly. The .10 level was selected given the nature of the research, size of the population, and the homogeneous profile of the homemakers. This level of significance has a one in ten chance of falsely concluding that the relationships are significant.

Relative to significance levels, Blalock (1960) points out that it is dependent upon two factors: strength of relationship and size of sample. Freund (1960) points out that the choice of a level of significance is essentially arbitrary and depends on whatever consequences there may be to committing a Type I error. A Type I error is committed when we reject a true hypothesis.

Some Limitations of The Study

1. The primary information for the study was collected by use of the 24-hour food recall instrument. This instrument is used to record the dietary behavior of a homemaker for the previous day. It is possible that during that period of time, the homemakers' dietary behavior was different from that which is normally practiced.
2. Although the 24-hour food recall technique has been validated and accepted as a legitimate means of measuring dietary

behavior, there is no way to measure the accuracy of the food recall made by each homemaker.

3. Due to the limited information available from the food recall instrument, only five socio-economic characteristics were compared to dietary behavior of the homemakers.
4. The number of homemakers that could be found to collect post-graduate information from did not represent a true random sample. However, information was collected from all who were available.
5. The homemakers included in the study were a very homogeneous group and all lived in an urban area.
6. The data collection procedure included the use of nutrition aides who had been responsible for supervising the implementation of the program.

Some Assumptions of The Study

The author acknowledges the following assumptions during the collection of data for this study:

1. That the nutrition aides were totally objective in the data collection process,
2. That the 24-hour food recall instrument was an accurate means of recording dietary intake,
3. That the homemakers contacted gave accurage responses to the 24-hour food recall instrument,
4. That the nutrition aides extended a concerted effort to contact all 208 homemakers,
5. That the 114 homemakers that were contacted at T_3 were truly representative of the 208 that had graduated,

6. That all nutrition aides were equal in their teaching ability,
7. That the EFNEP guidelines were adhered to throughout the study period, and
8. That the purpose of nutrition education is to produce a change in dietary behavior for the long term well-being of the individual.

Chapter IV

ANALYSIS OF DATA

Introduction

The survey instrument (shown in Appendix A) was the 24-hour food recall that was administered to 208 homemakers at entry (T_1) to the EFNEP, and again at graduation (T_2) from the program two years later.

A second phase of the study dealt with administering the 24-hour food recall instrument to 114 homemakers who had been graduated from the program for a period of at least 6 months but not more than 12 months (T_3).

The reader is here reminded that the 114 homemakers were included in the original 208. However, for analysis purposes, when mean dietary behavior scores were compared to other variables, the mean score of the 208 homemakers were compared to the variables and the mean scores of the 114 were compared to the variables.

Profile of Homemakers

In order to present a profile of the population for this study, frequency distribution information is presented in Tables 1 - 11.

In Table 1, the data show the number of homemakers participating in the three assistance programs at entry (T_1), graduation (T_2), and post-graduation (T_3). Participation in the food stamp and welfare programs was consistent through all time periods. There was a variation occurring in the Women's Infant Care program at the post-graduation period, when 10.3 percent of the homemakers

participated, reflecting reductions of 8.9 percent and 10.0 percent, respectively, from entry and graduation.

Table 1

Distribution of Selected EFNEP Homemakers in Orleans Parish by Participation in Selected Assistance Programs at Three Different Points in Time

Points in Time	Food Stamps N	%	WIC N	%	Welfare N	%
T_1	124	59.6	40	19.2	109	52.4
T_2	128	61.5	44	21.2	121	58.2
T_3	72	62.1	12	10.3	66	56.9

The data in Table 2 show the age distribution of homemakers at entry (T_1), graduation (T_2), and post-graduation (T_3). The youngest homemaker was 16 at entry (T_1) and the oldest was 68 at post-graduation (T_3); and the data shows an increase in age of homemakers during the three-year span of this study. The group mean age was 30.8, 32.9, and 34.01, respectively, for the three points in time.

Table 2

Distribution of Selected EFNEP Homemakers in Orleans Parish by Age Distribution at Three Different Points in Time

Points in Time	16 - 24 N	%	25 - 35 N	%	36 - 45 N	%	46 - 55 N	%	56 + N	%	Totals N	%
T_1	62	29.8	94	45.2	28	13.5	21	10.1	3	1.4	208	100
T_2	43	20.7	101	48.6	34	16.3	24	11.5	6	2.9	208	100
T_3	21	17.9	50	42.7	26	22.2	14	12.0	6	5.2	117	100

The information in Table 3 show the family size of homemakers at entry (T_1), graduation (T_2), and post-graduation (T_3). At all time points, about three-fifths of the homemakers had one to three members in the family, and one-third had four to six members. Only a small proportion had seven to ten members in the family. In addition, thirty-nine homemakers reported an adult male (18 years and older) as a member of the family. This represents nineteen percent of the families at entry (T_1).

Table 3

Distribution of Selected EFNEP Homemakers in Orleans Parish by Number of Family Members at Three Different Points in Time

Points in Time	1 - 3		4 - 6		7 - 10		Totals	
	N	%	N	%	N	%	N	%
T_1	127	60.1	71	34.1	10	4.8	208	100
T_2	131	63.0	65	31.2	12	5.8	208	100
T_3	67	57.8	40	34.4	7	7.8	114	100

The four educational categories attained by homemakers at entry (T_1), graduation (T_2), and post-graduation (T_3) are shown in Table 4. The only slight deviation recorded was at T_3 which indicated that those homemakers may tend to be better educated.

Monthly income levels of homemakers at entry (T_1), graduation (T_2), and post-graduation (T_3) are shown in Table 5. There appeared to be a slight shift of homemakers from the lowest income group ($315 and under) to the next group ($316-$419) from T_1 to T_2. Furthermore, at post graduation (T_3), there were more homemakers in the highest income group ($621 and over) than at entry (T_1) and graduation (T_2). The mean

Table 4

Distribution of Selected EFNEP Homemakers in Orleans Parish by Selected Educational Level at Three Different Points in Time

Points in Time	8th Grade or Less		9-10th Grade Completion		11-12th Grade Completion		Beyond High School		Totals	
	N	%	N	%	N	%	N	%	N	%
T_1	26	12.5	58	27.9	114	54.8	10	4.8	208	100
T_2	27	13.0	52	25.0	117	56.3	12	5.8	208	100
T_3	12	10.3	27	23.3	65	56.1	12	10.3	116	100

income at T_1, T_2, and T_3 was $315.00, $331.00, and $337.00 per month, respectively.

In Tables 6-9, the data indicate the number of servings of meat, milk, fruit/vegetables,and bread/cereal consumed by homemakers at entry (T_1), graduation (T_2), and post-graduation (T_3). The reader is here reminded that this information was obtained by administering the 24-hour food recall instrument. The minimum recommended number of servings in an adequate diet of the meat and milk group is two, and that for fruit/vegetable and bread/cereal is four. It was observed that at entry (T_1), 74.5 percent of the homemakers had two or more servings of meat; 12.5 percent, two or more servings of milk; 37.0 percent, four or more servings of fruit/vegetables; and 82.2 percent, four or more servings of bread and cereal. The data suggest greater improvements were made in the milk and fruit/vegetable groups from T_1 to T_2 and T_3, and lesser improvements in the meat and bread/cereal groups. This may be because homemakers entered the program with better dietary behavior in the meat and bread/cereal food groups.

The mean numbers of servings consumed for the three points in time for meat were 2.17, 2.37, and 2.61; for milk, .77. 1.35, and 1.31; for fruit/vegetables, 1.32, 2.44, and 2.27; for bread/cereal, 2.46, 3.15, and 2.93, respectively.

Table 5

Distribution of Selected EFNEP Homemakers in Orleans Parish by Monthly Income Levels at Three Different Points in Time

	Monthly Income Levels											
Points in Time	$315 & Under		$316-419		$420-519		$520-620		$621 & over		Totals	
	N	%	N	%	N	%	N	%	N	%	N	%
T_1	140	67.6	31	14.9	15	7.3	9	4.4	12	5.9	207	100
T_2	124	59.9	46	22.2	17	8.2	9	4.3	11	5.4	207	100
T_3	66	59.5	24	21.7	7	6.3	1	.9	13	11.6	111	100

Table 6

Distribution of Selected EFNEP Homemakers in Orleans Parish by Servings of Meat Consumed at Three Different Points in Time

	Number of Servings							
Points in Time	0		1		2 or more		Totals	
	N	%	N	%	N	%	N	%
T_1	4	1.9	49	23.6	155	74.5	208	100
T_2	3	1.4	22	10.6	183	88.0	208	100
T_3	3	2.5	9	7.6	106	89.9	118	100

Table 7

Distribution of Selected EFNEP Homemakers in Orleans Parish by Servings of Milk Consumed at Three Different Points in Time

Points in Time	Number of Servings: 0 N	0 %	1 N	1 %	2 or more N	2 or more %	Totals N	Totals %
T_1	80	38.5	101	48.5	27	13.0	208	100
T_2	30	14.4	87	41.8	91	43.8	208	100
T_3	27	22.9	38	32.2	53	44.9	118	100

Table 8

Distribution of Selected EFNEP Homemakers in Orleans Parish by Servings of Fruits and Vegetables Consumed at Three Different Points in Time

Points in Time	Number of Servings: 0 N	0 %	1 N	1 %	2 N	2 %	3 N	3 %	4 & over N	4 & over %	Totals N	Totals %
T_1	64	30.8	67	32.2	44	21.2	21	10.1	12	5.7	208	100
T_2	17	8.2	43	20.7	54	26.0	46	22.1	48	23.0	208	100
T_3	15	12.7	19	16.2	34	28.8	27	22.9	23	19.4	118	100

Table 9

Distribution of Selected EFNEP Homemakers in Orleans Parish by Servings of Bread and Cereal Consumed at Three Different Points in Time

Points in Time	Number of Servings: 0 N	0 %	1 N	1 %	2 N	2 %	3 N	3 %	4 & Over N	4 & Over %	Totals N	Totals %
T_1	1	.5	36	17.3	73	35.1	75	36.0	23	11.1	208	100
T_2	3	1.4	7	3.4	43	20.7	75	36.1	80	38.4	208	100
T_3	5	4.2	9	7.6	17	14.4	52	44.2	35	29.6	118	100

The information in Table 10 show the number of homemakers who were consuming a minimal diet; that is, a diet that contained at least one serving from each of the four food groups. The data indicated that 83 homemakers, or 39.9 percent, consumed this diet at entry; however, at graduation, 165 homemakers, or 79.7 percent, were achieving this level of consumption; and generally, this improvement was carried through the post-graduation reporting period.

Table 10

Distribution of Selected EFNEP Homemakers in Orleans Parish by Consumption of Minimal Diets at Three Different Points in Time

Points in Time	Yes		No		Totals	
	N	%	N	%	N	%
T_1	83	39.9	125	60.1	208	100
T_2	165	79.4	43	20.6	208	100
T_3	85	73.9	30	26.1	115	100

In Table 11, the data show the number of homemakers who were consuming an adequate diet; that is, a diet that contains at least two servings each of milk and meat and four servings each of bread/cereals and fruit/vegetables. The data indicate a 10.6 percent increase in the number of homemakers who were consuming an adequate diet from entry (T_1) to graduation (T_2), with a 6.4 percent reduction from graduation to post-graduation (T_3).

Changes in dietary behavior scores of the homemakers from entry to graduation (T_2-T_1), entry to post-graduation (T_3-T_1), and graduation to post-graduation (T_3-T_2) are shown on Table 12. The data show that the mean difference in the dietary behavior score of 24.60 from entry to graduation (T_2-T_1) was highly statistically significant at the .0001

level of significance. The 114 homemakers evaluated at post-graduation (T_3-T_2) shows a slight decrease in score of 4.94; however, this decrease was not statistically significant. The overall improvement by the 114 homemakers during the 3-year longitudinal study (T_3-T_1) indicate an increase in the mean dietary behavior score of 20.95, which is statistically significant.

Table 11

Distribution of Selected EFNEP Homemakers in Orleans Parish by Consumption of Adequate Diets at Three Different Points in Time

Points in Time	Yes		No		Totals	
	N	%	N	%	N	%
T_1	4	1.9	204	98.1	208	100
T_2	26	12.5	182	87.5	208	100
T_3	7	6.1	108	93.9	115	100

It was inferred that homemakers participating in the EFNEP made highly significant improvements in their dietary behavior scores at graduation and retained their dietary behavior scores after graduation at a statistically significant level.

Table 12

A Comparison of the Difference in Dietary Behavior Scores of Selected EFNEP Homemakers at Three Different Points in Time Orleans Parish, Louisiana, 1983-86

Time Period	N	Mean Difference	t
T_2-T_1	208	24.60	12.77**
T_3-T_2	114	- 4.74	- 1.56
T_3-T_1	114	20.95	6.94**

** Significant at .0001 level.

Change in Dietary Behavior Scores Compared to Selected Socio-Economic Characteristics

The change in dietary behavior scores from entry to graduation (T_2-T_1), graduation to post-graduation (T_3-T_2), and entry to post-graduation (T_3-T_1) were compared to observe differences by socio-economic characteristics. In each instance, a multiple regression model was used to analyze the relationship between the changes in dietary behavior (measured as the mean difference in dietary score) with the characteristics of participation in three assistance programs, educational level of homemakers, age of homemakers, family size, and income. The findings are presented with respect to each of the characteristics studied.

Participation in Assistance Programs

Tables 13-15 show the relationship of dietary behavior changes at the three time periods with homemakers' participation in the Food Stamp Program, the Women's Infant Care Program (WIC), and the Public Welfare Program.

As can be seen in Table 13, from entry to graduation, homemakers who were receiving food stamps and those not receiving food stamps improved in their dietary behavior almost to the same extent. From graduation to post-graduation, the homemakers who received food stamps had a much smaller negative change in their dietary behavior score than the homemakers who did not receive food stamps (-.3 vs. -10.8). When comparing the change from entry to post-graduation, the improvement in dietary behavior score was substantially higher for food stamp recipients (25.2) compared with those homemakers not receiving food stamps (15.7).

Although there was a tendency for food stamp participants to retain the dietary changes made during the EFNEP participation as compared with homemakers not receiving food stamps, the difference between the two groups was not found to be statistically significant.

Table 13

A Comparison of the Difference in Dietary Behavior Scores of Selected EFNEP Homemakers at Three Different Points in Time to Participation in Food Stamp Program Orleans Parish, Louisiana, 1983-86

Time Period	N	Mean Difference by Participation		F(a)
		Yes	No	
T_2-T_1	208	23.9	24.8	.05
T_3-T_2	114	- .3	-10.8	.74
T_3-T_1	114	25.2	15.7	1.70

(a) F for T_2-T_1 is with 17 and 188 df.

(a) F for T_3-T_2 and T_3-T_1 is with 19 and 91 df.

In Table 14, from entry to graduation (T_2-T_1), homemakers who were participating in the Women's Infant Care Program and those not participating improved in their dietary behavior almost at the same level. However, the homemakers participating in WIC did achieve slightly higher dietary scores than the non-participants. From graduation to post-graduation (T_3-T_2), the participating homemakers had a smaller negative change in their dietary behavior than the homemakers who were not participating (-1.8 vs -4.4). When comparing the dietary behavior change from entry to post-graduation (T_3-T_1), the improvement in dietary behavior score was substantially higher for WIC participants (29.3) compared with the non-participating homemakers (19.9).

Although there was a tendency for homemakers participating in the Women's Infant Care Program to achieve higher changes and to retain these dietary changes made during the EFNEP, when compared with homemakers not participating in Women's Infant Care, the difference between the two groups was not found to be statistically significant.

Table 14

A Comparison of the Difference in Dietary Behavior Scores of Selected EFNEP Homemakers at Three Different Points in Time to Participation in Women's Infant Care program Orleans Parish, Louisiana, 1983-86

Time Period	N	Mean Difference by Participation Yes	No	F(a)
T_2-T_1	208	28.7	23.2	.56
T_3-T_2	114	-1.8	-4.4	.11
T_3-T_1	114	29.3	19.9	.76

(a) F for T_2-T_1 is with 17 and 188 df.

(a) F for T_3-T_1 is with 19 and 91 df.

In Table 15, from entry to graduation (T_2-T_1) homemakers who were participating in the Public Welfare Program and those not participating improved their dietary behavior almost at the same level. Homemakers not receiving welfare achieved a slightly higher score on dietary behavior than participants (27.6 vs 21.2). From graduation to post-graduation (T_3-T_2), homemakers receiving welfare had a small positive change in their dietary behavior as compared with a negative change in dietary behavior of homemakers not receiving welfare (1.1 vs -9.6). When comparing the dietary behavior change from entry to post-graduation (T_3-T_1), the improvement for homemakers receiving welfare

indicated a greater increase (24.3) than when compared with those homemakers who did not receive welfare (19.2).

There was a tendency for homemakers not participating in the Public Welfare Program to achieve greater dietary change during the program. However, they did not retain the change as well as the homemakers participating in the program. These trends of difference between the two groups were not statistically significant.

Table 15

A Comparison of the Difference in Dietary Behavior Scores of Selected EFNEP Homemakers at Three Different Points in Time to Participation in Public Welfare Program Orleans Parish, Louisiana, 1983-86

Time Period	N	Mean Difference by Participation		F(a)
		Yes	No	
T_2-T_1	208	21.2	27.6	2.25
T_3-T_2	114	1.1	-9.6	.57
T_3-T_1	114	24.3	19.2	.24

(a) F for T_2-T_1 is with 17 and 188 df.

(a) F for T_3-T_2 and T_3-T_1 is with 19 and 91 df.

The data in Table 16 show that homemakers in all educational categories improved their dietary behavior almost at the same level from entry to graduation. From graduation to post graduation, homemakers in the 11-12th grade category had a slight increase in score when compared to homemakers in the other three categories. These groups had a negative change in their dietary behavior with homemakers in the beyond high school category showing the largest change (-16.3). When comparing the changes from entry to post-graduation, the improvement in dietary behavior score was substantially higher for homemakers

with an eighth grade or less education level and those that were beyond high school (28.3 and 35.5) than when compared with homemakers in the 9th-10th grade and 11th-12th grade category (17.1 and 22.4). The author acknowledges that the 35.5 mean score difference (T_3-T_1) represents only four homemakers, which could be responsible for this relatively high difference in score.

There was a slight tendency for homemakers who had completed high school and beyond in the EFNEP tended to achieve a higher change and to retain this dietary behavior, but when compared with the homemakers in the other educational levels, the difference between the four groups was not statistically significant.

Table 16

A Comparison of the Difference in Dietary Behavior Scores of Selected EFNEP Homemakers at Three Different Points in Time to Educational Levels, Orleans Parish, Louisiana 1983-86

Time Period	N	Mean Difference of Educational Level: 8th Grade or Less	9-10th Grade Completion	11-12th Grade Completion	Beyond High School	F(a)
T_2-T_1	208	22.8	26.3	23.5	24.9	.15
T_3-T_2	114	-4.2	-11.3	.95	-16.3	1.08
T_3-T_1	114	28.3	17.1	22.4	35.5	.21

(a) F for T_2-T_1 is with 17 and 188 df.

(a) F for T_3-T_2 and T_3-T_1 is with 19 and 91 df.

The data in Table 17 indicated a slight decrease in the dietary behavior scores from entry to graduation (T_2-T_1)as homemakers increased in age. When dietary behavior scores from graduation to post-

graduation (T_3-T_2) and entry to post-graduation (T_3-T_1) were compared, the regression coefficient reflected a slight increase in the dietary score as homemakers increased in age.

Although the regression coefficients indicated tendencies toward the influence of age upon the dietary behavior of homemakers, the differences at the three points in time was not statistically significant.

In Table 18, the regression coefficient for entry to graduation (T_2-T_1) indicate a decrease in the dietary behavior score as the family size of the homemakers increased (-1.27). From graduation to post-graduation, there was an increase in the score as family size increased (1.94). However, from entry to post-graduation, the regression coefficient indicated a decrease in the dietary behavior score (-.71) as family size increased.

Although the regression coefficient does indicate both positive and negative tendencies upon the dietary behavior score as family size increases, the differences at the three points in time were not statistically significant.

Table 17

Relationship Between Changes in Dietary Behavior Scores of Selected Homemakers at Three Different Points in Time to Age, Orleans Parish, Louisiana, 1983-86

Points in Time	N	Regression Coefficient (b)	F
T_2-T_1	208	-.14	.47
T_3-T_2	114	.26	.68
T_3-T_1	114	.20	.40

Table 18

Relationship Between changes in Dietary Behavior Scores of Selected Homemakers at Three Different Points in Time to Family Size, Orleans Parish, Louisiana, 1983-86

Points in Time	N	Regression Coefficient (b)	F
T_2-T_1	208	-1.27	1.00
T_3-T_2	114	1.94	.88
T_3-T_1	114	- .71	.12

When family income was considered (Table 19), the regression coefficients for all three time periods indicated infinitesimal and statistically non-significant changes in the dietary behavior scores with changes in income (-.01).

Table 19

Relationship Between Changes in Dietary Behavior Scores of Selected Homemakers at Three Different Points in Time to Income, Orleans Parish, Louisiana, 1983-86

Points in Time	N	Regression Coefficient (b)	F
T_2-T_1	208	-.01	.53
T_3-T_2	114	.01	.32
T_3-T_1	114	.01	.13

Chapter V

SUMMARY, FINDINGS, AND CONCLUSIONS

Summary

The primary objective of this study was to determine the extent to which dietary behavior changes were made and retained by low-income homemakers enrolled in the EFNEP in Orleans Parish. Other objectives of the study were:

1. To determine selected socio-economic characteristics of program participants,

2. To determine whether or not these characteristics were associated with dietary behavior change of participants, and

3. To draw conclusions about the effectiveness of the EFNEP conducted in Orleans Parish, Louisiana, 1983-86.

Population

The population for the study was 208 black homemakers who participated in the EFNEP for the two years from entry (T_1) to graduation (T_2). Another time period in the study dealt with obtaining data on the dietary behavior practices of homemakers who had been graduated for at least six months but less than one year. This point in time is referred to as T_3. There were only 114 of the initial 208 homemakers that could be located by the nutrition aides to collect data for analysis for the post-graduation time (T_3).

Data Collection

The 24-hour food recall instrument was the basis upon which the dietary behavior changes were evaluated. Dietary information was obtained from homemakers upon entry in the program (T_1), upon graduation (T_2), and six to twelve months after graduation (T_3). At T_1 and T_2 there were 208 homemakers, and at T_3 there were 114 homemakers that could be located.

Three supervisory nutrition aides collected the data from the 114 homemakers located at the post-graduation time period (T_3). The list of homemakers was rotated among the aides to avoid contact with graduated homemakers that they had worked with in the program. The dietary behavior of homemakers was recorded for this study as a numerical score ranging from 0 to 100 as determined by using the scoring guide.

Data Analysis

Multiple regression analysis was used to analyze the collective and separate effects of two or more independent variables on a dependent variable. The dependent variable was the mean score difference in the dietary behavior at the three points in time [entry (T_1), graduation (T_2), and 6 months to 12 months after graduation (T_3)], as determined by the 24-hour food recall instrument. The independent variables in the study which were compared to the dietary behavior mean score were age, family size, income, participation in assistance programs, and educational level.

The t-ratio was computed to determine the mean difference in dietary scores of the two groups at the three points in time.

Findings

The following represents the major findings from the analysis of data:

Finding:

1. The 208 black homemakers in Orleans Parish, Louisiana, participating in the EFNEP made statistically significant dietary behavior improvements during the two years of enrollment.

Discussion

This finding is supported by Williams (1970), who also found that homemakers made significant improvement in their daily consumption of foods. Similar findings were also reported by Plovanich (1970), Wang, Green, and Ephross (1972), Linder (1976), and Krueger (1979), which recorded significant dietary improvements during the EFNEP. Nolan and Gross (1972) stated that the "EFNEP has been successful in improving dietary behavior, especially in the first 18 months of the program." Similarly, Nordstrom and Kohrs (1978) indicated that homemakers who were enrolled longer than one year made significant improvement in their dietary scores.

Additional analysis of the data indicate that some of the more specific improvements in the four food groups include a 13 percent increase in the number of homemakers consuming the adequate servings of meat; a 30 percent increase in the number of homemakers consuming the adequate servings of milk; a 17 percent increase in the number of homemakers consuming the adequate servings of fruit/vegetables; and a 27 percent increase in the

number of homemakers consuming the adequate servings of bread/cereal. The number of homemakers consuming an adequate diet increased from 1.9 percent at entry to 12.5 percent at graduation. Homemakers consuming a minimal diet had increased from 39 percent at entry (T_1) to 79 percent at graduation (T_2).

Finding

2. The 114 homemakers included in the post-graduation (T_3) phase of the study retained their improved dietary behavior practices at a statistically significantly level when compared to their entry (T_1) group mean score.

Discussion

Studies by Brown and Pestle (1981) and Kateregga (1981) support these findings with their findings that the dietary behavior improvements were sustained one year after the homemakers graduated from the EFNEP. Similarly, Williams (1970) indicated an increase in the numbers of homemakers having at least one serving of each of the four food groups immediately after the EFNEP and four months after graduation. Regression of improved dietary behavior was reported by Verma and Jones (1973) after graduation, but homemakers maintained dietary scores above those at entry level in the EFNEP.

The 114 homemakers in Orleans Parish did experience a reduction of dietary behavior scores during the 6 to 12 months after graduation from the EFNEP. However, they were able to maintain the consumption of the four food groups at a statistically significant level when compared to their entry score. Specific improvement from their entry score included a 15 percent increase

in the number of homemakers consuming 2 servings of meat; a 31 percent increase in the number of homemakers consuming 2 servings of milk; an 11 percent increase in the number of homemakers consuming 4 servings of fruit/vegetables; and an 18 percent increase in the number of homemakers consuming 4 servings of bread/cereal. The number of homemakers consuming an adequate diet at post-graduation (T_3) improved to 6 percent from an entry level of less than two percent. The homemakers improved in the consumption of a minimal diet from an entry level (T_1) of 39 percent to a post-graduation (T_3) level of 73 percent.

Finding

3. There was found to be no statistically significant difference between the dietary behavior score of homemakers and their age.

Discussion

This is supported by Barrick (1979), who also found that there was no statistically significant difference in the dietary behavior scores of homemakers regarding age. Similarly, Linder (1976) found that homemakers of all ages reached the higher level of dietary intake at the end of twelve months of the EFNEP and improved their dietary score throughout the 24 months of the program. Although not statistically significant, the data from this study show a slight increase in the dietary behavior scores as homemakers increased in age.

Finding

4. There was found to be no statistically significant difference between the dietary behavior scores of homemakers and their income.

Discussion

Homemakers in this study experienced little improvement in their monthly income during the duration of the study. The monthly mean income was $315, $331, and $337, respectively, for T_1, T_2, and T_3. Studies by Brew (1971) and Langston (1977) also found that the income level was not statistically significant when compared to the dietary behaviors of homemakers.

Finding

5. There was found to be no statistically significant difference between the dietary behavior scores of homemakers and their educational level.

Discussion

The Orleans Parish homemakers who had completed high school and beyond tended to achieve higher dietary behavior scores and to retain these scores, but when compared to the homemakers in the other educational categories the difference was not statistically significant. This is generally supported by Barrick (1979) who found that the highest and lowest extremes in dietary scores occurred in homemakers with education beyond the high school level. Similar findings were also obtained by Seiders, Carter, and Dotson (1972) and Linder (1976) who found that the adequacy of diets was not significantly related to the educational level of homemakers. Homemakers generally remained at the entry level of education throughout the entire study.

Finding

6. There was found to be no statistically significant difference between the dietary behavior scores of homemakers and their family size.

Discussion

Although the difference was not statistically significant from entry (T_1) to post-graduation (T_3), the regression coefficient from entry (T_1) to post-graduation T_3) indicated a positive association between the dietary behavior score and increased family size. This is consistent with the findings of Barrick (1979) that a significant difference was shown in homemakers' mean scores when compared to family size. A similar study by Feaster (1972) indicated that the most improvement in dietary adequacy was among homemakers with three or more children. Three-fifths of the homemakers in Orleans Parish had one to three members in their family, while one-third had four to six members in their family throughout the three points in time.

Finding

7. There was found to be no statistically significant difference between the dietary behavior scores of homemakers and their participation in assistance programs.

Discussion

Although the difference in dietary behavior scores of those participating in assistance programs were not found to be statistically significant, the data show that those participating

in assistance programs did tend to improve their dietary behavior more than those not participating in assistance programs.

This is consistent with Feaster and Perkins' (1973) finding that homemakers receiving food stamps had higher dietary scores than those not receiving food stamps. Similarly, Davis (1977) found that simultaneous participation in the EFNEP and Food Stamp Program had greater impact on improved nutrient intake than either program taken separately.

Conclusions

1. On the basis of the findings in this study, the researcher concluded that the EFNEP in Orleans Parish, Louisiana, 1983-86 was effective in improving the dietary behavior of the participating homemakers. This improvement was enough to be statistically significant. This is important, but the researcher must also point out that although the program was very effective in bringing about improvement, only 6.1 percent of the homemakers were consuming an adequate diet at post-graduation, which was an increase of only 4.2 percent from initial entry of the program. If this was the only factor to be considered, one could easily question the cost of conducting the EFNEP. However, in a thorough evaluation of the program, one would have to consider such things as the influence that homemakers have on other family members and their many limitations such as income, educational level, environment, and other socio-economic factors. The greatest change in dietary behavior occurred with homemakers consuming a below minimal diet. This group represented 60 percent of the homemakers at entry (T_1) and decreases substantially to 26 percent at post-graduation (T_3). This ascension of dietary behavior by the majority of participants

represents the significant change that occurred in the EFNEP. Those homemakers with the lowest dietary score experienced behavior change which moved them to a higher plane of nutrition behavior.

2. The findings in this study are generally consistent with other studies designed to determine the effectiveness of the EFNEP in improving dietary behavior of low-income homemakers. Most similar studies show an improvement in the dietary behavior practices of homemakers while enrolled in the EFNEP. The variation of change ranges from a tendency toward dietary improvement to a statistically significant change. These findings have been discussed in detail in this chapter.

3. Homemakers participating in assistance programs tended to improve their dietary behavior more than homemakers not participating. Although the difference was not great enough to be statistically significant, tendencies did exist. This association was also reflected in findings discussed in the Review of Literature. This researcher concluded that participants in the EFNEP (60 percent) recognized that help was available to improve their quality of life and they were willing to expend the time and effort needed to achieve this goal of dietary improvement. Possible reasons for non-participation in assistance programs could include (1) being unaware of the program, (2) not willing to accept help (pride), and (3) satisfied with their present situation.

There should be increased networking between agencies administering assistance programs and the EFNEP personnel.

4. There was no statistically significant difference between dietary behavior change and age, family size, and income. Previous studies of the EFNEP, cited in the Review of Literature, are inconclu-

sive since about half of the studies showed age, family size, and income to be associated with dietary behavior improvement and the other half found them to be nonsignificant. The characteristic of age was the only independent variable that indicated a tendency toward dietary improvement. Seventy-five percent of the homemakers were 35 years of age and less. One could conclude that young homemakers (35 and under) tend to improve dietary behavior more readily than older homemakers, but more evidence would be needed to support the conclusion.

5. The EFNEP in Orleans Parish has been effective in helping low-income homemakers improve their dietary behavior. Although it was not proven in this study, it could be concluded that the family members of the homemakers also experienced dietary improvements since the homemakers usually prepared the family meals. Also, since the homemakers were interested enough to enroll in the EFNEP, it would be logical to assume that they were interested in the dietary behavior of the family members. Benefits from the EFNEP will not only be experienced by these homemakers but also in future generations because of the transfer of improved dietary habits developed as a young family member.

6. The general profile of the homemakers that participated in the EFNEP in Orleans Parish, Louisiana, 1983-86 included the following characteristics:

a. All homemakers were black,
b. The majority (60 percent) participated in assistance programs,
c. The majority had one to three members in the family,
d. The majority (75 percent) were below thirty-five years of age at entry,

e. The majority (90 percent) had a twelfth grade or less educational level,

f. The majority (80 percent) were single, female-headed households, and

g. They had monthly incomes of $419 or less.

7. There is a need for additional research to study different methods and teaching techniques to determine if there are more effective methods to effect behavioral change of low-income homemakers. The guidelines for administering the EFNEP are well structured and defined allowing virtually no departure for execution. Pilot studies utilizing additional teaching methods and techniques need to be funded and executed to determine the effect on the dietary behavior of low-income homemakers. These studies will help answer the question, "Are there better methods to effect behavior change among low-income homemakers?"

8. Although the findings of this study show that dietary behavior was improved and retained for up to twelve months after graduation from the EFNEP, it is not felt that this evidence is extensive enough to conclude that these behavioral changes will be permanent. The literature on social change reviewed in this study emphasizes that there is a tendency for groups that have been worked with by a change agent and moved to a different level have a tendency to revert back to old behavior unless they experience a high degree of satisfaction at the new level and/or that they have experiences that reinforce their new behavior. It is also suggested that one of the major factors that contribute to the stability of change is that a positive relationship is established between the client system and change agent. This suggests that those graduated from the EFNEP should have the opportuni-

ty to participate in other educational programs conducted by the Louisiana Cooperative Extension Service. However, at this point in time, efforts to accomplish this objective have not been successful. The Louisiana Cooperative Extension Service personnel, as well as those from their State Extension Services that have responsibility for the EFNEP, should make a concerted effort to find ways to encourage those homemakers to participate in the Extension programs that could greatly improve their lives as well as those of their family members.

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APPENDIX A

24-HOUR FOOD RECALL INSTRUMENT

FORM NO. 40R3619

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

FAMILY RECORD

A. DESCRIPTION

1. AIDE'S NAME | 2. STATE NO. 22 | 3. UNIT NO.

Fill out for each family in unit as soon as possible and every 6 months thereafter. Keep in family file after review by Trainer/Agent.

4. FAMILY ID NO. _____

(a) Name _____

(b) Street _____

(c) City _____ (d) State _____

5. DATE FAMILY ENROLLED _____

6. FAMILY RECEIVED *(Some time during the year)*:

(a) ☐ Participating in USDA Food Stamp/Food Distribution Program

(b) ☐ WIC/CSFP

(c) ☐ Welfare

FAMILY MEMBERS (First name) (7)	AGE (years) (8)	SEX Male (9)	SEX Female (10)	CHECK IF "YES" Now in School (11)	CHECK IF "YES" Participated in Child Nutrition Programs last week (12)
NO. OF FAMILY MEMBERS _____	TOTALS →				

13. HIGHEST GRADE IN SCHOOL COMPLETED BY HOMEMAKER

☐ 8th Grade or less ☐ 9th thru 10th ☐ 11th thru 12th ☐ Beyond High School

14. CHECK FOR HOMEMAKER

(a) ☐ White (not of Hispanic origin) (c) ☐ Hispanic (e) ☐ Asian or Pacific Islander

(b) ☐ Black (not of Hispanic origin) (d) ☐ American Indian/Alaskan Native

15. TERMINATION DATE AND REASON

16. PLACE OF RESIDENCE

☐ Farm

☐ Towns under 10,000 and rural non-farm

☐ Towns and Cities 10,000 to 50,000

☐ Suburbs of Cities of over 50,000

☐ Central Cities of over 50,000

☐ Housing Project

☐ Private Home

☐ Own

☐ Rent

APPENDIX B

SCORING TABLE FOR TWENTY-FOUR HOUR DIET

SCORING TABLE FOR TWENTY-FOUR HOUR DIET

To find the Twenty-four Hour Diet score:

1. Select the appropriate table (below) on the basis of the number of *milk* servings reported in Item 7, FAMILY RECORD-B (0, 1, (2) or more). NOTE: Circled numbers ((2), (4)) are the highest score possible in a food group. For number of servings larger than the circled number, use the circled number. Example, for 3 servings of milk, use the (2) MILK SERVINGS table.
2. Select the proper column of the table on the basis of the number of *meat* servings reported in Item 8.
3. Select the proper area of the table on the basis of the number of *vegetable/fruit* servings reported in Item 9 (0, 1, 2, 3, (4) or more).
4. Find the proper line of the table on the basis of the number of *bread/cereal* servings reported in Item 10.

The number to the right of this (in type style "74") is the Twenty-four Hour Diet score. Enter the diet score at the appropriate "months in program" time on the homemaker's FOOD AND NUTRITION PROGRESSION RECORD.

0 MILK SERVINGS

0 MEAT SERVINGS			1 MEAT SERVING			(2) MEAT SERVINGS		
Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score
0	0	0	0	0	3	0	0	6
	1	2		1	10		1	14
	2	4		2	12		2	17
	3	6		3	15		3	25
	(4)	8		(4)	23		(4)	29
1	0	2	1	0	10	1	0	14
	1	9		1	22		1	27
	2	11		2	25		2	35
	3	13		3	33		3	39
	(4)	21		(4)	37		(4)	43
2	0	4	2	0	12	2	0	17
	1	11		1	25		1	35
	2	13		2	33		2	39
	3	21		3	37		3	43
	(4)	25		(4)	41		(4)	47
3	0	6	3	0	15	3	0	25
	1	13		1	33		1	39
	2	21		2	37		2	43
	3	25		3	41		3	47
	(4)	29		(4)	45		(4)	60
(4)	0	8	(4)	0	23	(4)	0	29
	1	21		1	37		1	43
	2	25		2	41		2	47
	3	29		3	45		3	60
	(4)	33		(4)	58		(4)	65

1 MILK SERVING

0 MEAT SERVINGS			1 MEAT SERVING			(2) MEAT SERVINGS		
Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score
0	0	3	0	0	11	0	0	16
	1	10		1	24		1	29
	2	12		2	27		2	37
	3	15		3	35		3	41
	(4)	23		(4)	39		(4)	45
1	0	10	1	0	24	1	0	29
	1	22		1	42		1	52
	2	25		2	50		2	56
	3	33		3	54		3	60
	(4)	37		(4)	58		(4)	64
2	0	12	2	0	27	2	0	37
	1	25		1	50		1	56
	2	33		2	56		2	62
	3	37		3	60		3	66
	(4)	41		(4)	64		(4)	79
3	0	15	3	0	35	3	0	41
	1	33		1	54		1	60
	2	37		2	60		2	66
	3	41		3	64		3	79
	(4)	45		(4)	77		(4)	85
(4)	0	23	(4)	0	39	(4)	0	45
	1	37		1	58		1	64
	2	41		2	64		2	79
	3	45		3	77		3	85
	(4)	58		(4)	82		(4)	91

(2) MILK SERVINGS

0 MEAT SERVINGS			1 MEAT SERVING			(2) MEAT SERVINGS		
Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score	Veg. Fruit	Bread Cereal	Score
0	0	6	0	0	16	0	0	21
	1	14		1	29		1	39
	2	17		2	37		2	43
	3	25		3	41		3	47
	(4)	29		(4)	45		(4)	51
1	0	14	1	0	29	1	0	39
	1	27		1	52		1	58
	2	35		2	56		2	62
	3	39		3	60		3	66
	(4)	43		(4)	64		(4)	80
2	0	17	2	0	37	2	0	43
	1	35		1	56		1	62
	2	39		2	62		2	68
	3	43		3	66		3	82
	(4)	47		(4)	79		(4)	88
3	0	25	3	0	41	3	0	47
	1	39		1	60		1	66
	2	43		2	66		2	82
	3	47		3	79		3	88
	(4)	60		(4)	85		(4)	94
(4)	0	29	(4)	0	45	(4)	0	51
	1	43		1	64		1	80
	2	47		2	79		2	88
	3	60		3	86		3	94
	(4)	65		(4)	91		(4)	100

VITA

Bobby Hugh Fletcher, son of Robbie and the late Hugh Oliver Fletcher, was born on August 18, 1938 in Logansport, Louisiana. He graduated from Logansport High School in 1956 after which he attended Stephen F. Austin State College in Nacogdoches, Texas, where he received his Bachelor of Science degree in Vocational Agriculture Education in 1961.

After graduation, he taught in the Palestine Independent School District for one year and entered into business with his father for eight years. He was employed by the Louisiana Cooperative Extension Service in November 1969 as an Assistant County Agent (4-H) in St. Tammany Parish., as Area Agent (Livestock) in Washington-St. Tammany Parish (1973-77), and as Assistant District Agent for the Metropolitan Area in September 1977, is currently serving as Associate District Agent (Metropolitan Area). He received his Master of Science degree in 1974 from Louisiana State University with a major in Extension Education.

He married Barbara Hampton on May 29, 1960, and he and his wife have two children, Denise Lynne and Bobby Hugh Fletcher, Jr., born June 1, 1961, and October 17, 1963, respectively.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Bobby H. Fletcher

Major Field: Extension Education

Title of Dissertation: An Evaluation of the Expanded Food and Nutrition Education Program, Orleans Parish, Louisiana, 1983-1986

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

May 16, 1986